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DSDC

PARTNERS

in Quality Solutions

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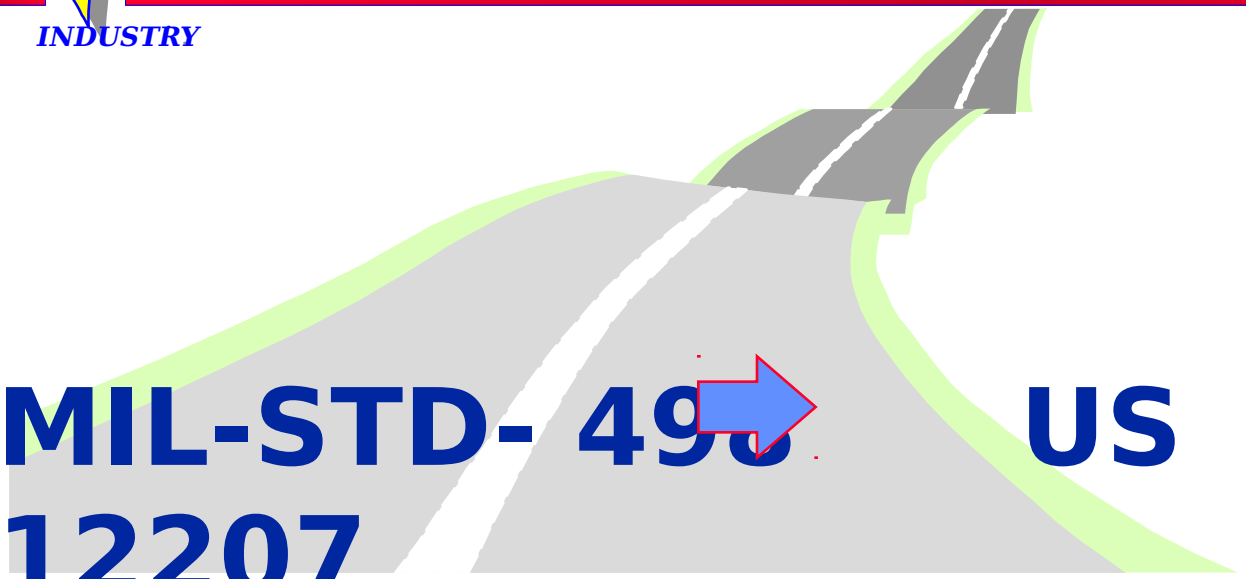

MIL-STD- 498 ⇨ US 12207

The Road to Successful Software Development Projects

Presented by: DSDC

For more info, send requests to:

sepg@dsdc.dla.mil

Objectives

After the class the student will understand the following:

- **The purpose of MIL-STD-498**
- **The affect of MIL-STD-498 on software development and document**
- **The advantages of using MIL-STD-498**

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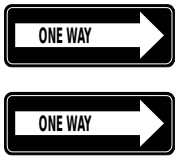
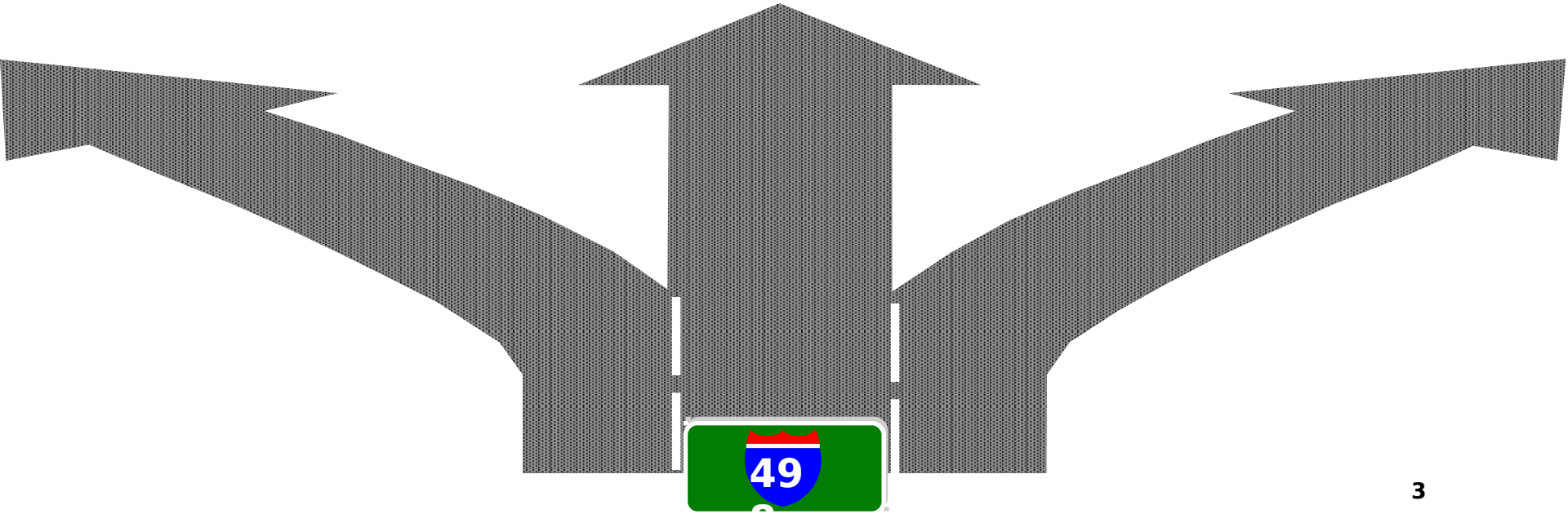
Highway 498 -- The New Route



MIL-STD-498

US 12207



Needs addressed by MIL-STD-498

- Improve compatibility with non-waterfall development methods
- Decrease dependence on formal reviews and audits
- Decrease emphasis on preparing hard copy documents
- Improve compatibility with CASE tools
- Clarify distinction between requirements and design

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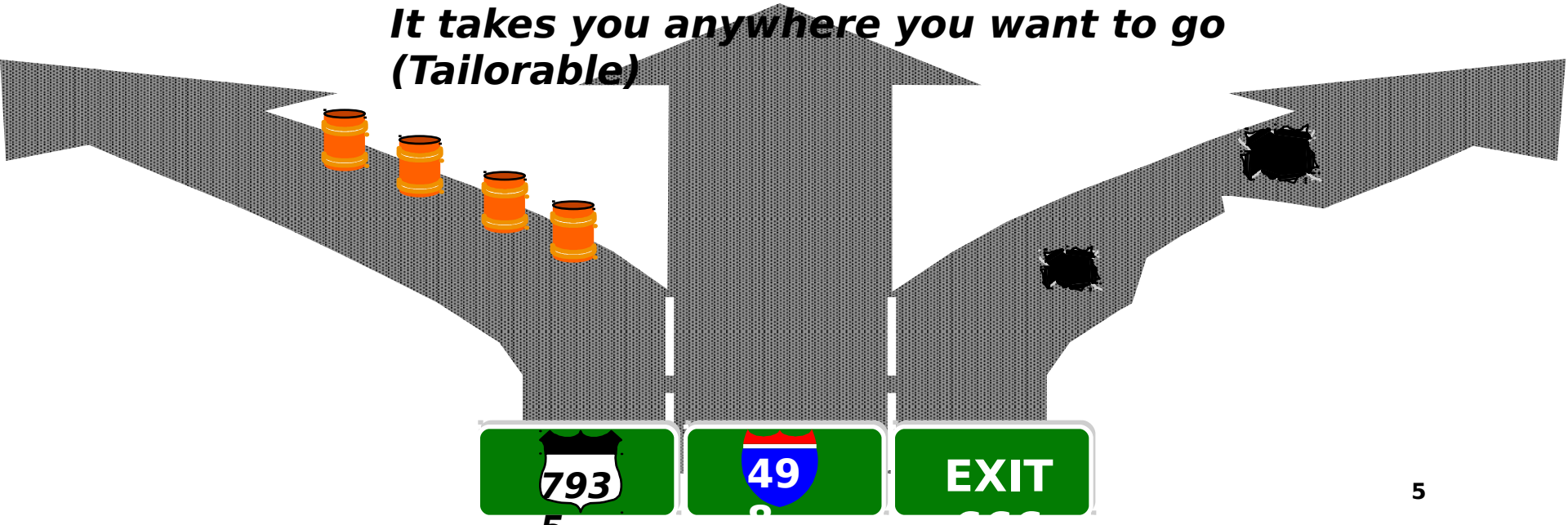
Why Should We Take Highway 498?

- ***Will get you there more efficiently (IEEE & CMM)***
- ***Has many Information Centers (DIDs)***
- ***It takes you anywhere you want to go (Tailorable)***



MIL-STD-498 and the CMM

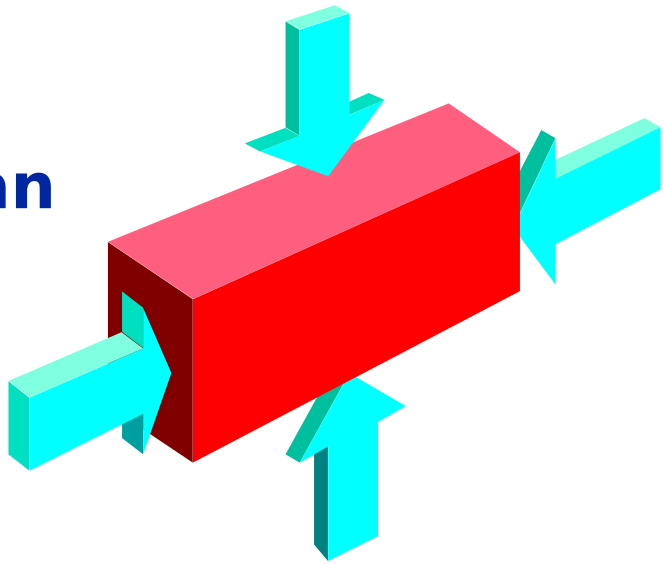
- **Major activities in MIL-STD-498 correspond to many project-level activities in the Capability Maturity Model (CMM) Levels 2 & 3**

- **Both tell <u>what</u>, not <u>how</u>**

Types of Plans

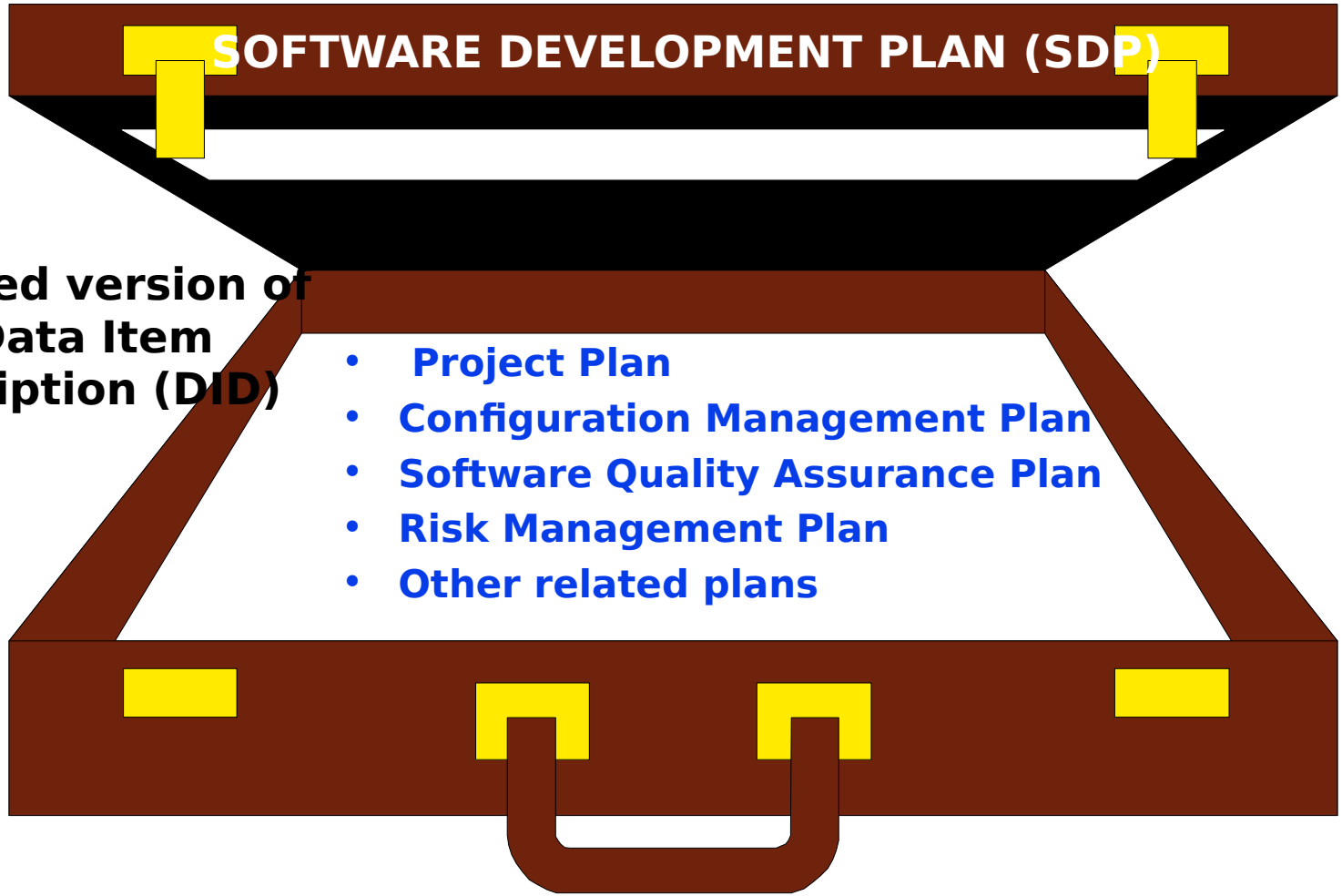
MIL-STD-498 Requires 4 Types of Plans

- Software Development Plan
- Software Test Plan
- Software Installation Plan
- Software Transition Plan



Planning the Trip

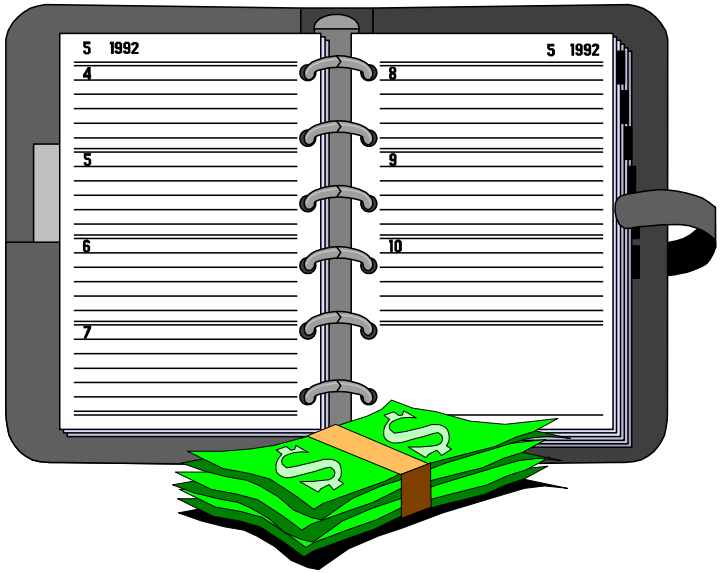
DSDC's


SOFTWARE DEVELOPMENT PLAN (SDP)
Tailored version of SDP Data Item Description (DID)
• Project Plan
• Configuration Management Plan
• Software Quality Assurance Plan
• Risk Management Plan
• Other related plans

Planning the Trip

Project Plan contains Project's estimates/actuals for:

- **Tasks**
- **Schedule**
- **Resources**
- **Cost**



Itinerary & Money

Planning the Trip

Configuration Management Plan defines Project's CM approach for:

- **Identification (Baselines, SDF, Libraries)**
- **Control (Change Proposals, Releases)**
- **Status Accounting**
- **Audits**

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Planning the Trip

Software Quality Assurance Plan

- Identifies Project's processes and standards

- Identifies Project's quality reviews and audits

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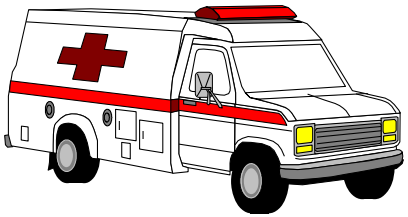
Planning the Trip

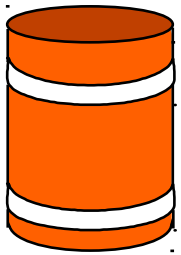
Risk Management Plan

- **Documents risks**
- **Defines mitigating strategies and tas**

Define ways to avoid potential problems



Reduce possibility of accidents



Avoid delays

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Staying the Course Through the Hills and Curves

Tailoring for variations in scope

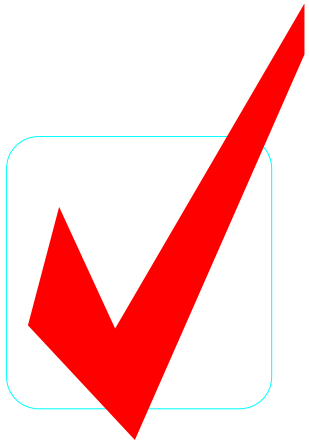
- Choice of life cycles
- Choice of DIDs and their data

- Automation easier

- Duplication of documentation avoided

MIL-STD-498 DIDs by Type

- **PLANS**
  - SDP S/W Development Plan
  - SIP S/W Installation Plan
  - STrP S/W Transition Plan



- **CONCEPT/REQUIREMENTS**
  - OCD Operational Concept Description
  - SSS System/Subsystem Specification
  - SRS S/W Requirements Specification
  - IRS Interface Requirements Specification

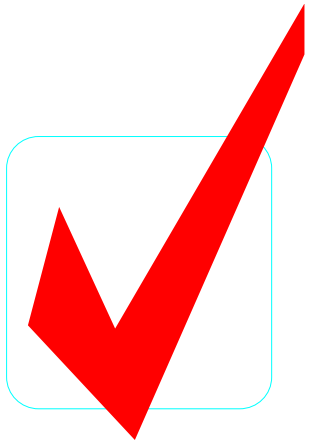
- **DESIGN**
  - SSDD System/Subsystem Design Description
  - SDD S/W Design Description
  - IDD Interface Design Description
  - DBDD Database Design Description

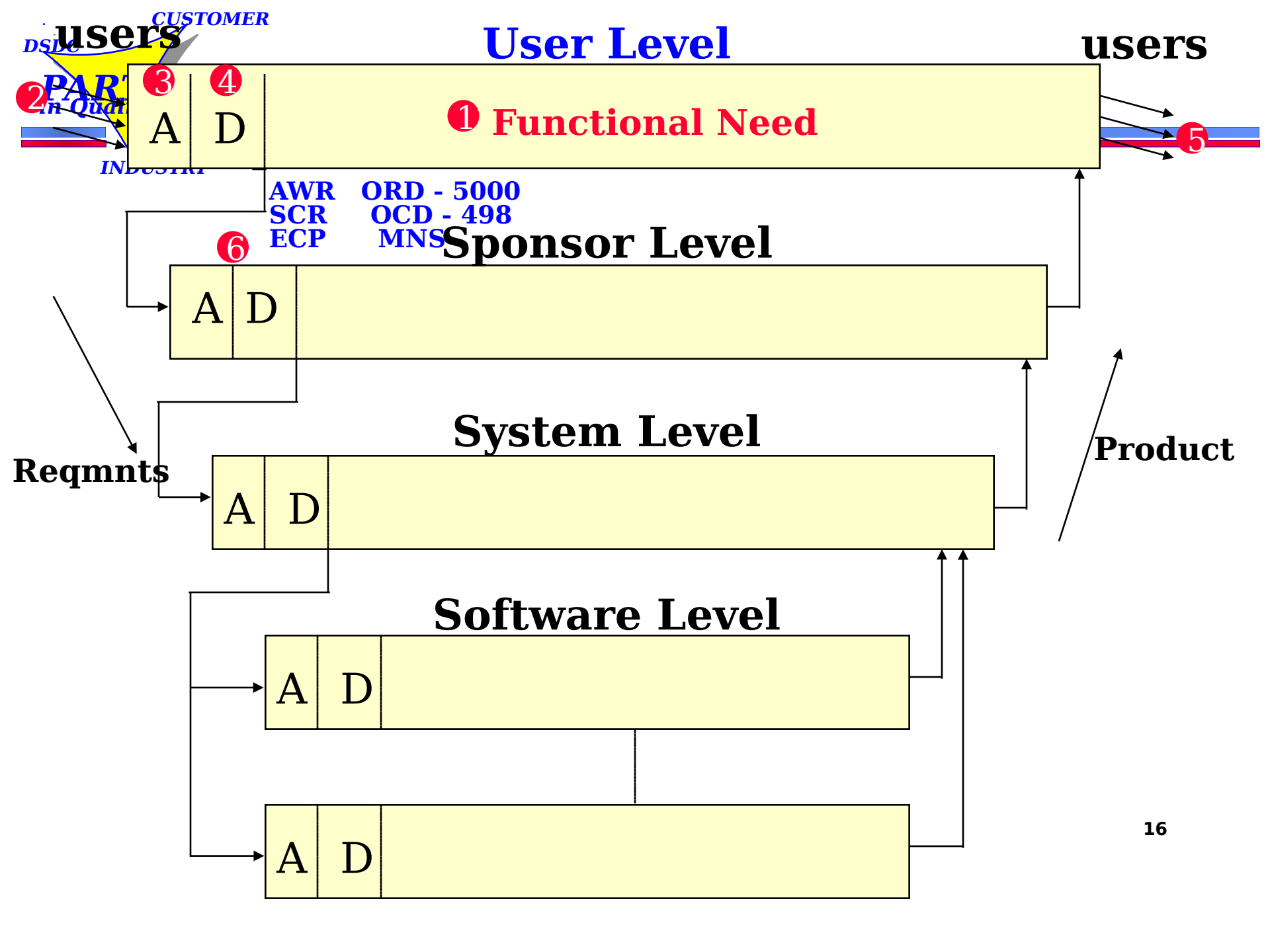
MIL-STD-498 DIDs (Cont'd)

- **TEST**
  - STP S/W Test Plan
  - STD S/W Test Description
  - STR S/W Test Report

- **USER/OPERATOR**
  - SUM S/W User Manual
  - SIOM S/W Input/Output Manual
  - SCOM S/W Center Operator Manual
  - COM Computer Operator Manual

- **SUPPORT**
  - SVD S/W Version Description
  - SPS S/W Product Specification
  - FSM Firmware Support Manual
  - CPM Computer Programming Manual

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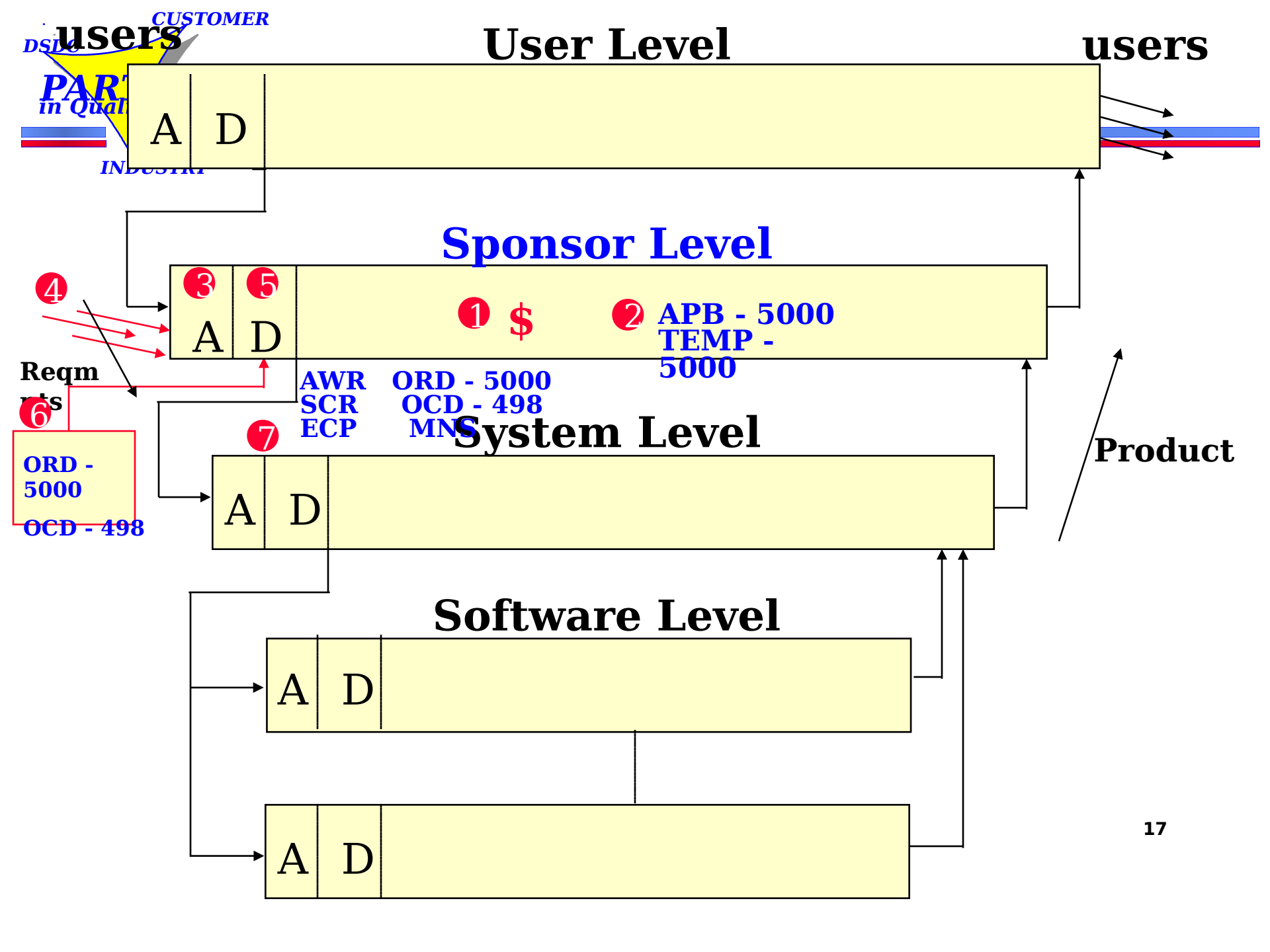
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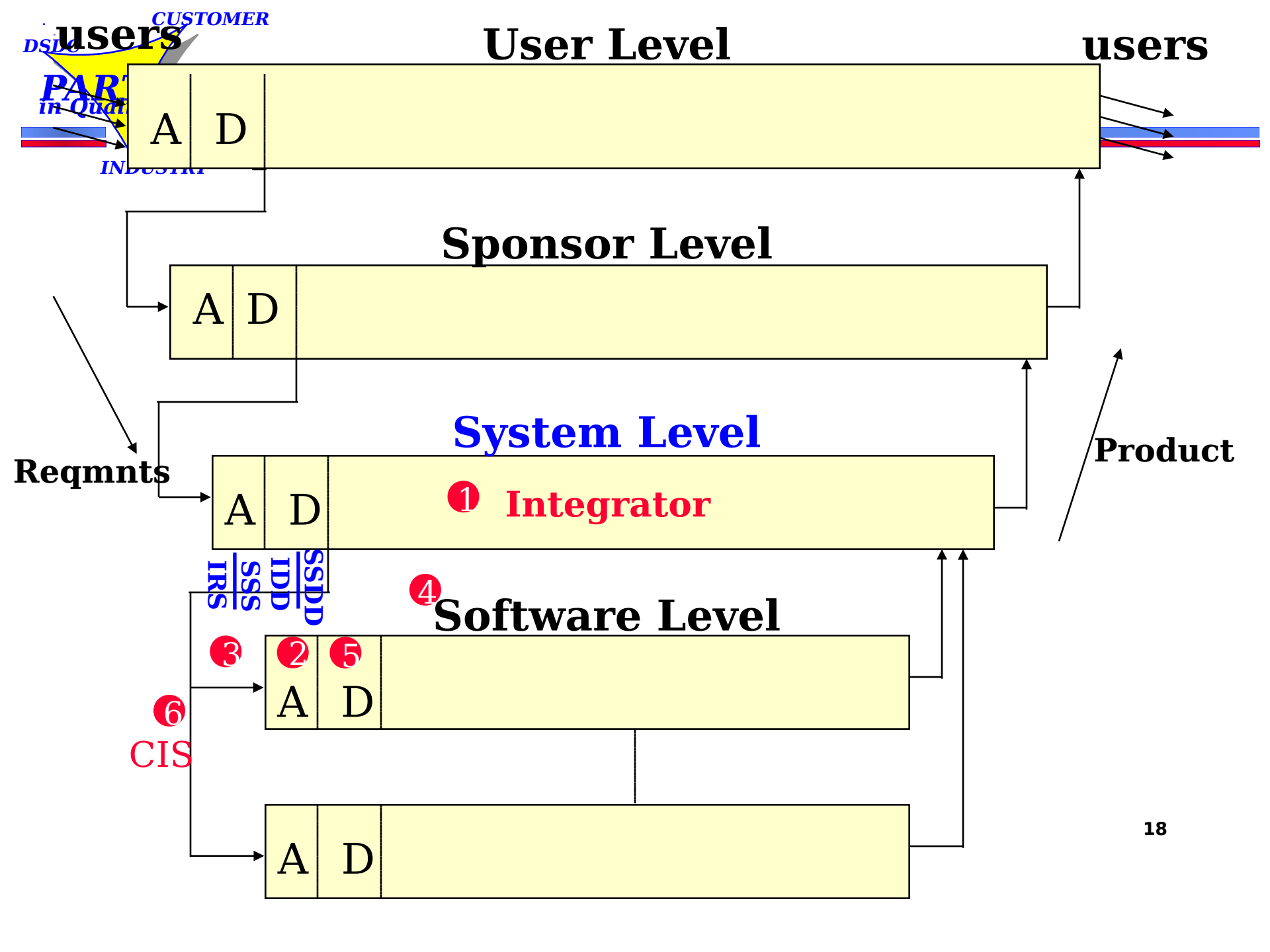
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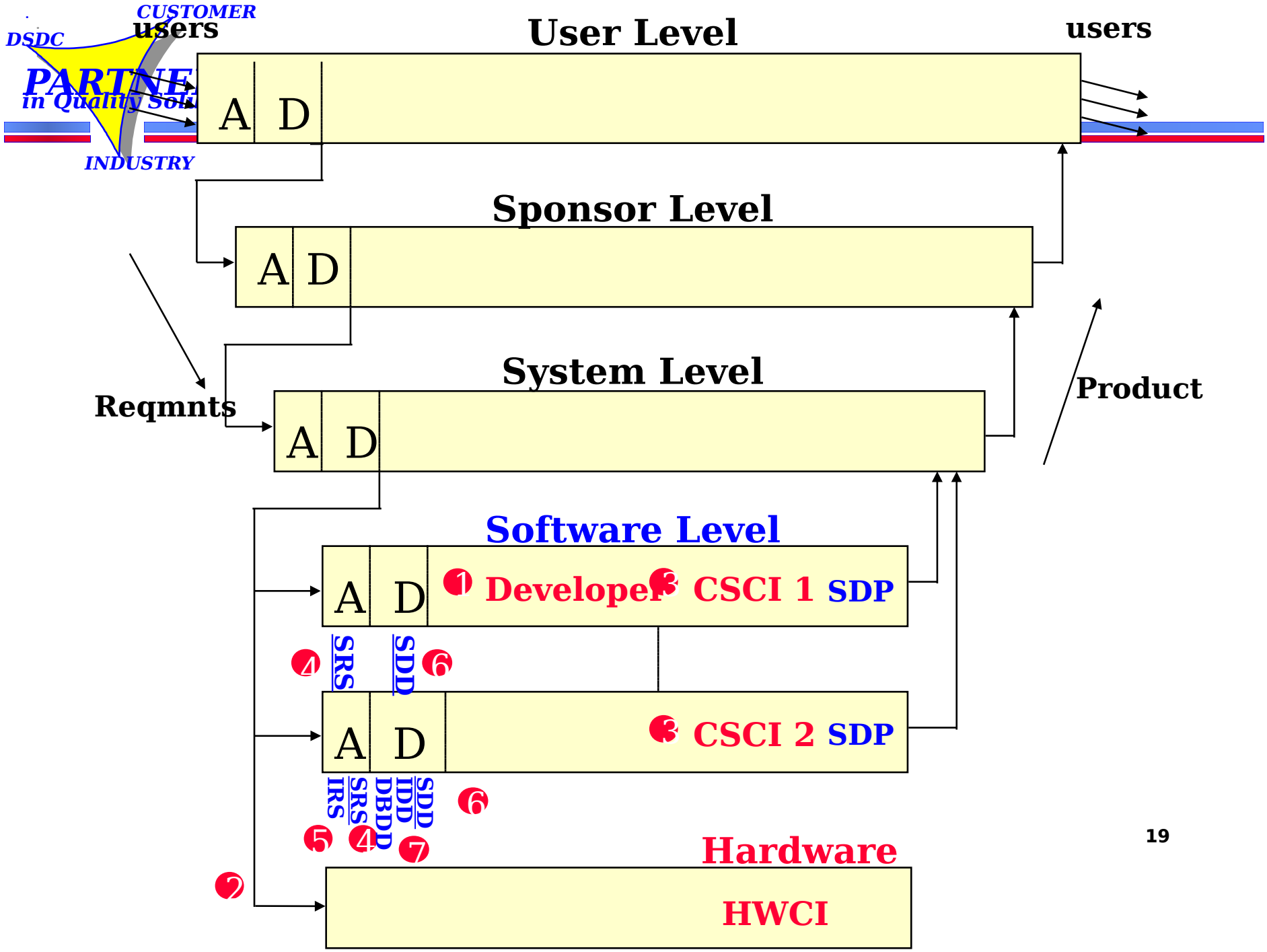
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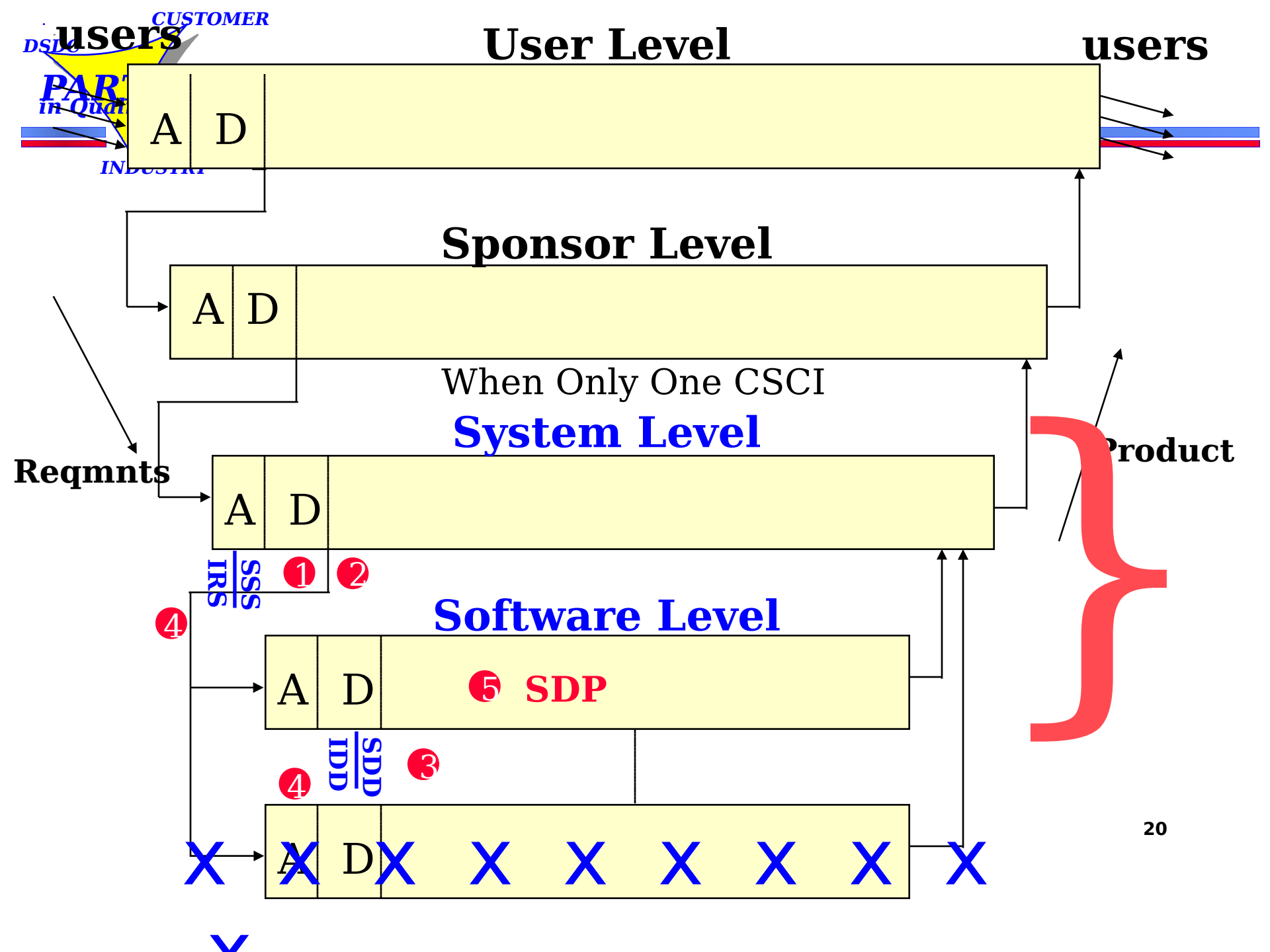
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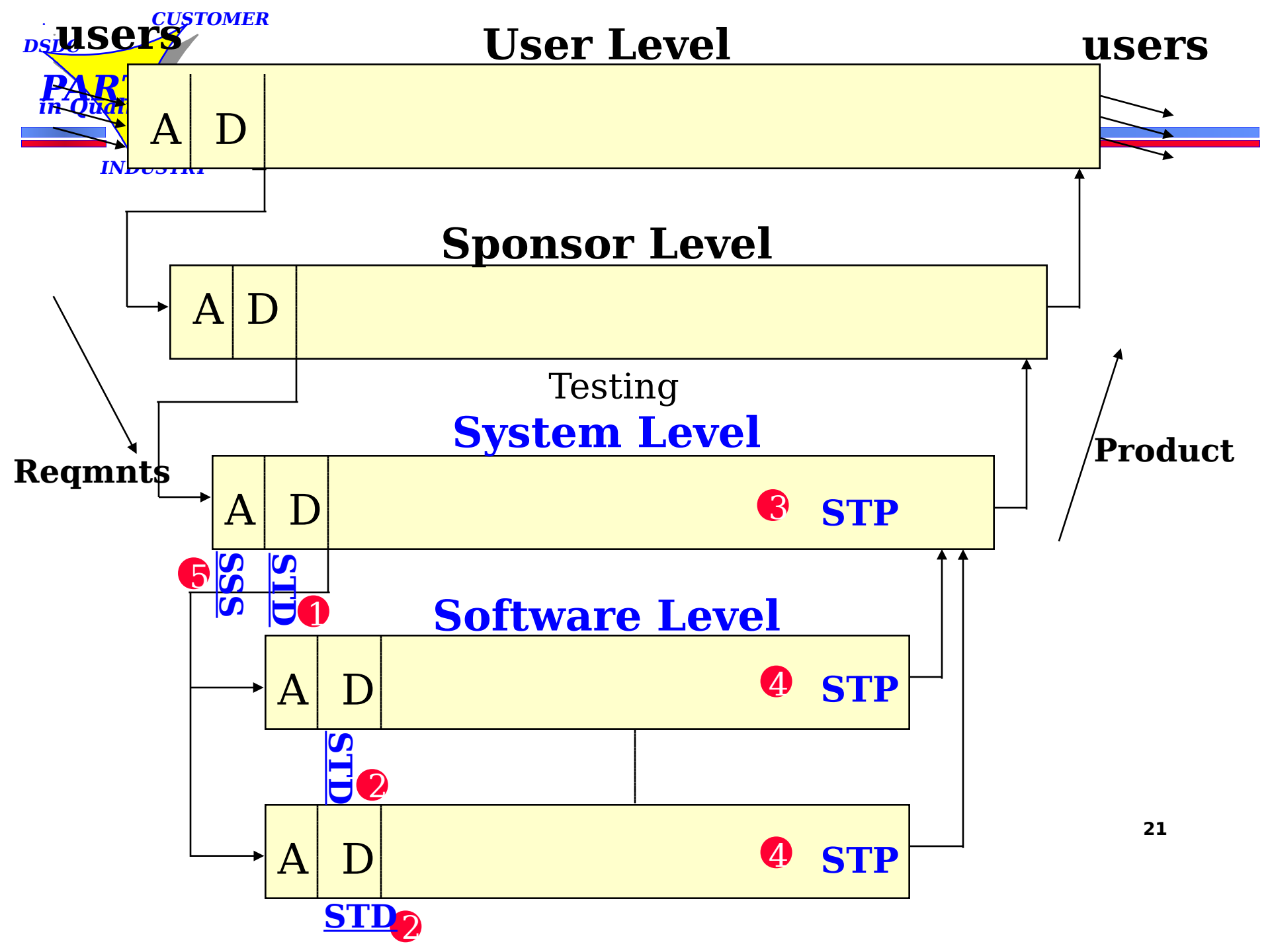
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Data Item Descriptions

- Are checklists of information
- Are tailorable to project needs and/or Customer's preference
- Provide requirements traceability
- Aid in proving requirements have been met (Qualified)
- Are deliverable if ordered by Customer

Requirements Traceability

- System/software requirements must be traced through each phase of the life cycle (from requirements development through test)

- Backward traceability to the SSS is mandatory

- Forward requirements traceability from the SSS is optional (expensive, but valuable)

Requirements Qualification

Qualification methods to ensure that requirements have been met (SSS Section 4):

- **Demonstration**
- **Test**
- **Analysis**
- **Inspection**
- **Special qualification methods**

MIL-STD 498 Activities

There are 19 Major MIL-STD-498 activities, e.g.:

1. **Project Planning & Oversight**

2. **Establishing a software development environment**

5. **Software Requirements analysis**

6. **Software Design**

14. **Software configuration management**

15. **Software quality assurance**

18. **Joint technical and management reviews**

19. **Other activities**

    a. **Risk management**
    b. **Security and privacy**
    c. **Subcontractor management**

Joint Reviews

- More frequent, smaller, more limited in scope

- GOAL: To find and fix problems through informal, conversational, technical communication between the acquirer organization and the development organization using the natural work products of the development effort.

- Aligns with DoD 5000 Policy's Integrated Product Team (IPT) approach

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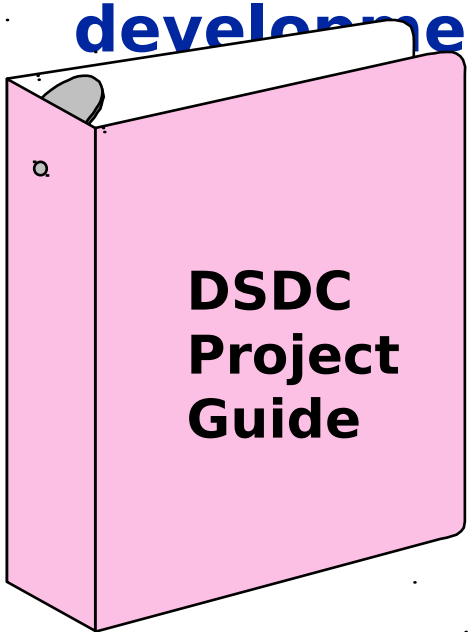
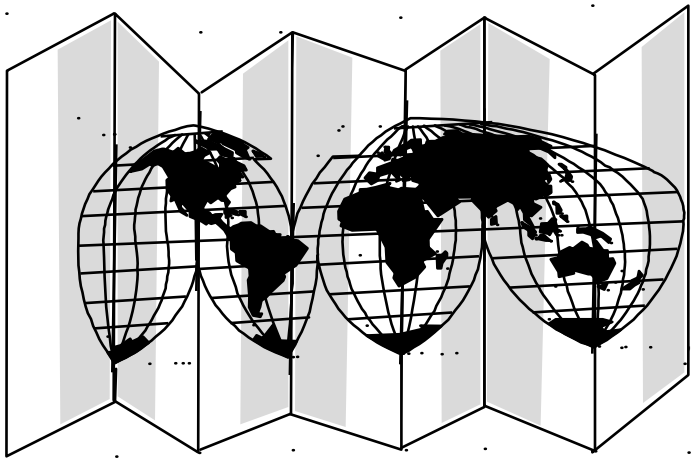
Following the Process Map

DSDC Project Guide for Implementing CMM

- Project Management
- Configuration Management
- Software Quality Assurance
- plus Level 3 activities under development

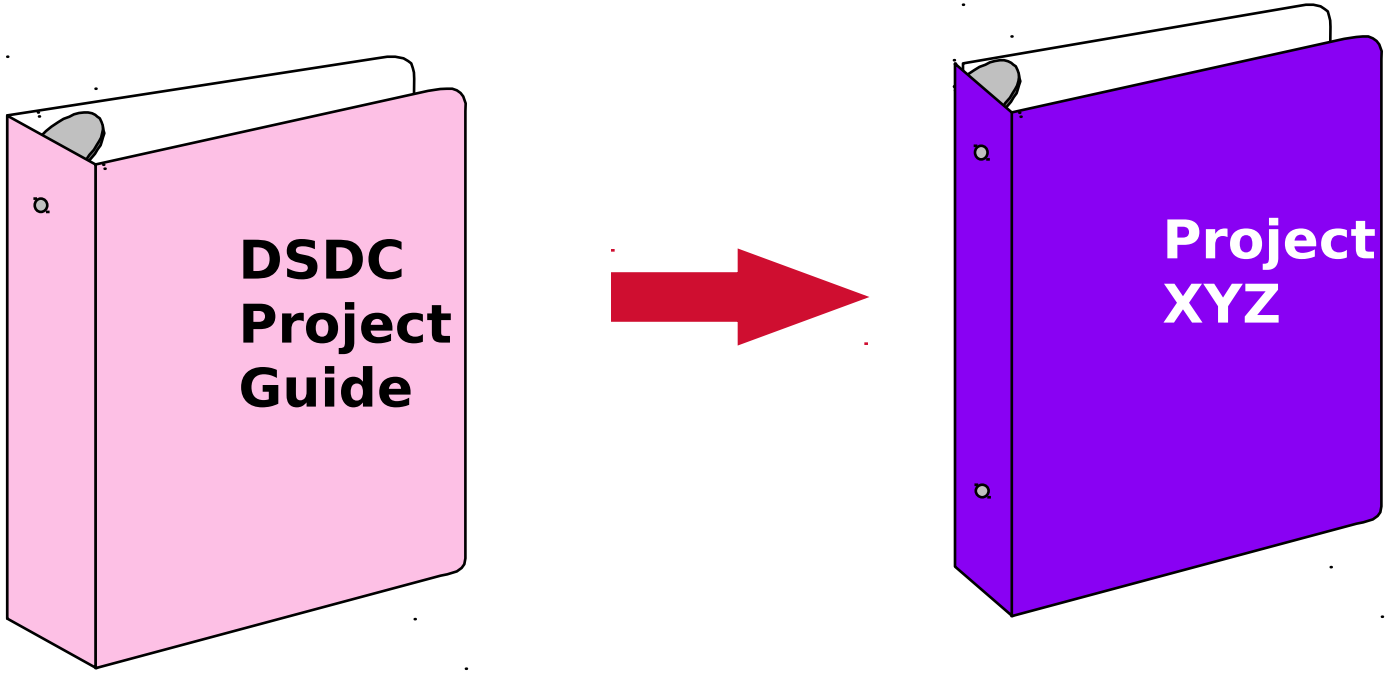




Following the Process Map

- Document High Level Requirements (OCD, System & Interface Specs)

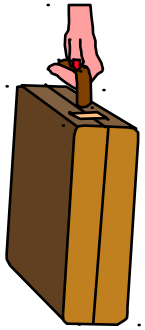
- Tailor DSDC's standard process to a project-specific approach



Reaching Our Destination: Software Effectiveness

- Requirements

- Plans



- Process